Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 15, with the following rewritten paragraph:

There are probably thousands of carotenoproteins to be found in nature. However, even today structures of a very few such compounds ~~has~~ have been fully characterized by applying the techniques of protein chemistry. Partial analysis has shown that among these compounds there are many lipoproteins in which the carotenoid moieties appear to be associated also with the lipid component. However, a stoichiometric relationship between carotenoid and protein has not always been found.

Please replace the paragraph beginning at page 6, line 13, with the following rewritten paragraph:

Fatty acids may be branched or unbranched and contain carbon atoms between ~~12 and 20~~14 and 24, and may be either saturated or unsaturated. The degree of unsaturation is between one and six.

Please replace the paragraph beginning at page 6, line 19, with the following rewritten paragraph:

Amino acids include but are not limited to alanine, arginine, ~~creatinine~~creatine, glycine, hydroxyproline, methionine, proline, serine, threonine, and tryptophan.

Please replace the paragraph beginning at page 8, line 25, with the following rewritten paragraph:

Portions of the lipid moieties present in the DCPs ~~(FIGURES 1 and 1A)~~ Formula I are covalently linked with the prosthetic group(s). This was suggested by the following study. Exhaustive extractions of DCPs by Bligh and Dyer solvent system, suitable for extraction of lipids, did not yield any free fatty acid but gave a small amount of acylated DCPs. The major insoluble residue on reaction with lipase produced C_{14} to C_{24} fatty acids in which $C_{16:0}$, $C_{18:0}$ and $C_{18:1}$ were the main components as depicted in Table 1. Thus, lipoproteins seem to constitute an integral part of the DCPs.

Please replace the Table 2 beginning at page 9, line 12, with the following rewritten Table 2:

Sr. No	Phylum/Class: Genus, species (Order/Family)	Age of specimen (period) Reference/Type number[a,b]	Place of Occurrence
Fossils Arthropoda/Trilobita:			
I	*Ptychoparia spitiensis*	Cambrian GSI – 9791[a]	
II	*Asaphus sp.*	Ordovician	
Brachiopoda/Articulata :			
III	*Kutchithyris acutiplicata*	Jurassic GSI-6596[a]	Kutch, Gujarat
IV	*Consinanthris sp.* (Terebratellacea)	Cretaceous	Trichy ,Tamil Nadu
Mollusca/Cephalopoda:			
V	*Nautilus angustus* (Ammonoidea)	Cretaceous GSI-97425[a]	Ariyaloor, TN
VI	*Perisphinctes aberrance* (Ammonoidea)	Jurassic GSI-2043[a]	Kutch, GJ
VII	*Kamptokephalites dimerus* (Ammonoidea), female sp.	Jurassic JUM - 1314[b]	Kutch, GJ
VIII	*K. dimerus*, male sp.	Jurassic JUM-1315[b]	Kutch, GJ
IX	*Idiocyclocerus perisphinctoides* (Ammonoidea), female sp.	Jurassic JUM-332[b]	Kutch, GJ
X	*I. perisphinctoides*, male sp.	Jurassic JUM-323[b]	Kutch, GJ
XI	*Paryphocerus* sp. (Ammonoidea)	Jurassic	Muktinath, Nepal
Foraminifera (Protozoa):			
XII	*Alveolina* sp.	Cretaceous	Kutch, Gj
XIII	*Discocyclina* sp.	Paleocene, Oligocene	Javana, Trichi
XIV	*Nummulites* sp.	Early Miocene	Kutch, Gj, ~~yanthia~~ Jayanthia Hill, India
XV	*Nacutus* sp.	-	Kutch, Gj

Cnidaria/Anthozoa (coral)			
XVI	*Diploria*	-	Bay of Bengal
Cnidaria/Hydrozoa (coral)			
XVII	*Stylaster*	-	Bay of Bengal

Please replace the Table 2 Continued:, beginning at page 11, line 1, with the following rewritten Table 2 Continued:

Sr. No	Phylum/Class: Genus, species (Order/Family)	Age of specimen (period),Reference/Type number[a,b]	Place of Occurrence	Parts examined
Living invertebrates - Mollusca/Gastropoda				
XIX	*Telescopium telescopium*	-	Coastal region of Bay of Bengal	Body flesh
XX	*Cerethedia cingulata*	-	Coastal region of Bay of Bengal	Body flesh
Mollusca/Cephalopoda				
XXI	*Loligo* sp.	-	Coastal region of Bay of Bengal	Body flesh
Arthropoda/Crustacea				
XXII	*Osipoda macrocera* (Red ~~rab~~Crab)	-	Coastal region of Bay of Bengal	Body flesh
XXIII	Copepoda	-	Coastal region of Bay of Bengal	Body flesh

Please replace the paragraph beginning at page 16, line 3, with the following rewritten paragraph:

The IR spectra of the mixture of DCPs isolated from shilajit and the Ammonites (Table 2) were very similar. Also, the HPLC retention times of the major peaks and their PDA spectra were similar. The DCP-fractions on exhaustive organic solvent extractions followed by the usual work-up yielded astaxanthin, astaxanthin fatty acyl derivatives and canaxanthin. 3,8-Dihydroxy dibenzo-alpha-pyrone and the amino acids isolated from shilajit-DCPs, were also isolated from the Ammonite fossils (Table 2) from their acid hydrolysates.

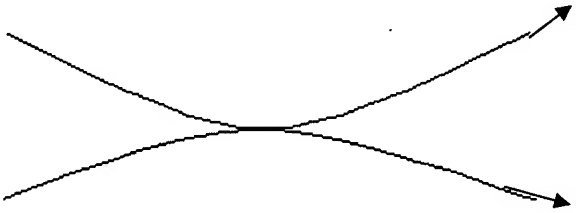
Please replace the paragraph beginning at page 16, line 14, with the following rewritten paragraph:

Preservation of color patterns on invertebrate fossils is a rare phenomenon but has been recorded throughout the Phanerozoic. The colored molecules comprising carotenoids, indigoids, and glycation of protein products, by the Maillard reaction, may form stable complexes by coordination with metal ions. Such intra-crystalline biomolecules act as a nucleation site for biomineralization. When limb muscles of dead marine animals decay, the vacated spaces are filled with minerals, such as pyrite (FeS_2, $CaSiO_3$) before the thin organic cuticles that surround them have time to collapse or decay. The organic material forms a substrate for the nucleation of pyrite (and other minerals), which is ubiquitous in marine sediments. Precipitation is ensued as a result of diffusion of Fe and S into the cell. Pyrite does not replace the tissue directly but precipitates on surfaces and within spaces. Mutual stabilization of the coloured molecules and proteins in shilajit as well as in the fossils of Ammonites, was augmented by the participation of the DBPs ~~(Figures 1 and 1A)~~ Formula (I). This is the first demonstration of the natural occurrence of DBPs in complex association with chromoproteins. Whether this association is a general phenomenon, also in the living human and animal organisms, was also evaluated. Mixture of DCPs (pink colored) isolated from plasma of albino rats when compared with the corresponding fractions of DCPs from shilajit exhibited some striking similarities in respect of HPLC peaks and

their PDA spectra. Even greater similarities were observed between semi-purified DCP constituents by gel filtration over Sephadex G-50, obtained from shilajit and from the plasma of a human volunteer. Similar general HPLC patterns were observed with several healthy human subjects.

Please replace the diagram beginning at page 18, line 4, with the following diagram:

(Synthesis catalysed by shilajit) ~~ADP~~ ADP



Creatine/Arginine ~~Phosphagens~~ Phosphagens

(in shilajit-DCPs)

Scheme 1

Please replace the paragraph beginning at page 18, line 9, with the following rewritten paragraph:

An energetic coupling represents the energy storage reaction when ATP is present in excess and, inversely, the formation of ATP by the reverse reaction when the cells need the ATP. Should we consider the biosynthesis and balance of DBP-phosphagen complexes in living organisms as the indices of their energy status, then in the event of ~~death~~ dearth of these phosphagens, administration (p. o.) of shilajit would replenish them.

Please replace the paragraph beginning at page 18, line 18, with the following rewritten paragraph:

DCPs participate in electron transport [systemic ATP synthesis by DCPs is conceivable because oral administration of DBP produced creatine and conjugated product(s)] and oxido-reductase reactions; catalyze other enzyme activities (e.g.,ATPase function as described in Cheesman, 1967); the larger abundance of DCPs in female

invertebrate fossils of the Jurassic (e. g., *Idiocyclocerus* and *Kamptokephalites* spp.) (Table 2) compared to their male counterparts, found in the present study, suggests their role in the development and protection of the embryos. The superior (qualitative and quantitative) biological functions of the DCPs compared to those of EPA, DHA, and free DBPs formed from EPA/DHA are described in the sequel.

Please replace the paragraph beginning at page 21, line 3, with the following rewritten paragraph:

Shilajit (rock powder) was extracted successively with hot ethyl acetate and methanol to remove free organic compounds which were subsequently analyzed comprehensively (~~Tables 2-5~~ Tables 3-6). The marc (ethyl acetate- and methanol-insoluble material) was triturated with hot water and citrate buffer (pH 5.0) and then filtered. The marc was analysed for inorganic minerals and humic substances. The aqueous solution was differently saturated with ammonium sulfate (25%, 50%, 75% and 100%) when DCPs of different complexities were precipitated as purple-brown solid. The solid residues were subjected to Sephadex gel filtration and electrophoresis for further purification of DCPs. The same general procedure was followed for the isolation of DCPs from the marine samples. In the precipitation of DCPs from aqueous solutions, however, one variation constituted addition of acetone, instead of ammonium sulfate and to isolate DCPs from acetone-insoluble and soluble fractions in the usual way.

Please replace the paragraph beginning at page 22, line 3, with the following rewritten paragraph:

Living marine invertebrates mainly molluscs (Telescopium, Cerethedia etc.) were collected from coastal region of Bay of Bengal and brought to the laboratory as live specimen. Each specimen was sacrificed and body flesh was taken out from shell. Body flesh was then extracted with hot ethylacetate to remove low molecular weight organic compounds and lipids. The marc (EtOAc insoluble portion) was further extracted with Bligh & Dyer solvent system [$CHCl_3$: MeOH (1:2) as initial solvent; $CHCl_3$: MeOH: H_2O (1:2:0.8) as intermediate solvent and $CHCl_3$: MeOH (1:2) as final solvent]. The Bligh & Dyer ~~(D&B)~~ (B&D) solvent was evaporated under reduced pressure. The B&D

extractive was dissolved in minimum volume of distilled water. The aqueous solution was divided into two portions. One portion was gradually saturated with ammonium sulphate and to the other portion, acetone was gradually added. Addition of both ammonium sulphate and acetone precipitated mixtures of DCPs (oxygenated dibenzo-alpha-pyrone chromoproteins) as off white solid. These compounds were analyzed by different chromatographic (HPLC) and spectroscopic (IR, ^{1}H-NMR,GC-MS) techniques to establish their identities with shilajit DCPs.